

We claim:

1. A method for treating a condition selected from the group consisting of dry eye, meibomian gland inflammation meibomian gland dysfunction, and
5 dry mouth comprising administering a nutritional supplement containing a n-6 fatty acid containing oil and a n-3 rich oil, wherein the n-3 rich oil contains a high concentration of eicosapentaenoic acid (EPA) and a high concentration of docosahexaenoic acid (DHA).
2. The method of claim 1, wherein the n-6 fatty acid containing oil
10 further comprises a n-3 fatty acid.
3. The method of claim 2, wherein the n-6 fatty acid containing oil is flaxseed oil.
- 15 4. The method of claim 1, wherein the n-6 fatty acid containing oil is a GLA-rich oil.
5. The method of claim 4, wherein the n-6 fatty acid containing oil is selected from the group consisting of evening primrose oil, borage oil, and black currant
20 seed oil.
6. The method of claim 3, further comprising an additional n-6 fatty acid, wherein the additional n-6 fatty acid is selected from the group consisting of evening primrose oil, borage oil, and black currant seed oil.
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7. The method of claim 1, wherein a sufficient amount of the n-3 rich oil is administered to provide a daily dose of at least about 150-550 mg EPA and at least about 50-500 mg DHA.
- 30 8. The method of claim 1, wherein a sufficient amount of the n-3 rich oil is administered to provide a daily dose of at least about 350-450 mg EPA.

9. The method of claim 1, wherein the daily dose of n-3 rich oil comprises at least about 250-350 mg DHA.

10. The method of claim 1, wherein the ratio by weight of the n-6 fatty acid containing oil to the n-3 rich oil is about 1 to 1.

11. The method of claim 1, wherein the ratio by weight of the n-6 fatty acid containing oil to the n-3 rich oil is about 1 to 1.4.

12. The method of claim 1, wherein the ratio by weight of the n-6 fatty acid containing oil to the n-3 rich oil is about 1 to 1.5.

13. The method of claim 1, wherein the ratio by weight of the n-6 fatty acid containing oil to the n-3 rich oil is about 1 to 3.

14. The method of claim 1, wherein the ratio by weight of the n-6 fatty acid containing oil to the n-3 rich oil is about 3 to 1.

15. The method of claim 1, wherein the supplement further comprises an oil soluble antioxidant.

16. The method of claim 15, wherein the supplement further comprises d-alpha-tocopherol.

17. The method of claim 15, wherein the antioxidant is vitamin E.

18. The method of claim 17, wherein the vitamin E is d-alpha tocopherol.

19. The method of claim 17, wherein the daily dose of vitamin E is at least about 100-400 IU.

20. The method of claim 17, wherein the daily dose of vitamin E is at least about 200 IU.

21. The method of claim 15, wherein the antioxidant comprises about
5 5-10 mg of mixed tocopherols per daily dose.

22. The method of claim 1 wherein the nutritional supplement is administered orally.

10 23. The method of claim 22 wherein the nutritional supplement is administered as four (4) softgel capsules daily.

24. The method of claim 1, wherein the supplement comprises 1.0 g of a n-6 fatty acid containing oil, 1.4 g of a n-3 rich oil that provides approximately 450
15 mg of EPA and approximately 350 mg of DHA, approximately 200 IU of vitamin E, and approximately 10 mg of mixed tocopherols per daily dose.

25. The method of claim 1, wherein the supplement comprises 1.0 g of a n-6 fatty acid containing oil, 1.5 g of a n-3 rich oil that provides approximately 450
20 mg of EPA and approximately 300 mg of DHA, approximately 200 IU of vitamin E, and approximately 10 mg of mixed tocopherols per daily dose.

26. The method of claim 1, wherein the supplement comprises approximately 1.0 g of a n-6 fatty acid containing oil, approximately 1.4 g a n-3 rich oil
25 that provides approximately 450 mg of EPA and approximately 350 mg of DHA, approximately 200 IU of vitamin E, and approximately 10 mg of mixed tocopherols, and wherein the supplement is administered in two doses daily.

27. The method of claim 1, wherein the supplement comprises
30 approximately 1.0 g of a n-6 fatty acid containing oil, approximately 1.5 g a n-3 rich oil that provides approximately 450 mg of EPA and approximately 300 mg of DHA, approximately 200 IU of vitamin E, and approximately 10 mg of mixed tocopherols, and wherein the supplement is administered in two doses daily.

28. The method of claim 1, wherein the n-3 rich oil is administered in sufficient dosage to inhibit conversion of dihomo-gamma-linolenic acid (DGLA) to arachidonic acid (AA).

29. The method of claim 1, wherein the n-3 rich oil is administered in sufficient dosage to increase the production of prostaglandin PGE₁.

30. The method of claim 1, wherein the n-3 rich oil is administered in sufficient dosage to inhibit apoptosis of the lacrimal gland and corneal and conjunctival epithelium.

31. The method of claim 1, wherein the n-3 rich oil is administered in sufficient dosage to inhibit apoptosis of the salivary gland.

32. The method of claim 1, wherein the n-3 rich oil is administered in sufficient dosage to block the gene expression of TNF- α .

33. A nutritional supplement for treating a condition selected from the group consisting of dry eye, meibomian gland inflammation and meibomian gland dysfunction, and dry mouth consisting essentially of a nutritionally sufficient amount of a n-6 fatty acid containing oil, a therapeutic amount of a n-3 rich oil that provides approximately 150-550 mg of EPA and approximately 50-500 mg of DHA, approximately 150-250 IU of vitamin E, and approximately 5-20 mg of mixed tocopherols per daily dose.

34. A nutritional supplement for treating dry eye, meibomian gland inflammation, meibomian gland dysfunction or dry mouth consisting essentially of approximately 1.0 g of a n-6 fatty acid containing oil, approximately 1.4 g of a n-3 rich oil that provides approximately 450 mg of EPA and approximately 350 mg of DHA, approximately 200 IU of vitamin E, and approximately 10 mg of mixed tocopherols.

35. A nutritional supplement for treating dry eye, meibomian gland inflammation, meibomian gland dysfunction or dry mouth consisting essentially of approximately 1.0 g of a n-6 fatty acid containing oil, approximately 1.5 g of a n-3 rich oil that provides approximately 450 mg of EPA and approximately 300 mg of DHA,
5 approximately 200 IU of vitamin E, and approximately 10 mg of mixed tocopherols.

36. The nutritional supplement of claim 33, wherein the ratio of the n-6 fatty acid containing oil to the n-3 rich oil is about 1 to 3.

10 37. The nutritional supplement of claim 33, wherein the ratio of the n-6 fatty acid containing oil to the n-3 rich oil is about 3 to 1.

38. A method of manufacturing a medicament for the treatment of a condition selected from the group consisting of dry eye, meibomian gland inflammation,
15 meibomian gland dysfunction, and dry mouth whereby said medicament comprises a nutritionally sufficient amount of a n-6 fatty acid containing oil, a therapeutically effective amount of a n-3 rich oil that provides approximately 150-550 mg of EPA and approximately 50-500 mg of DHA, approximately 150-250 IU of vitamin E, and approximately 5-20 mg of mixed tocopherols.

20 39. The method of claim 38, wherein the medicament comprises approximately 1.0 g of a n-6 fatty acid containing oil, approximately 1.4 g of a n-3 rich oil that provides approximately 450 mg of EPA and approximately 350 mg of DHA, approximately 200 IU of vitamin E, and approximately 10 mg of mixed tocopherols.

25 40. The method of claim 38, wherein the medicament comprises approximately 1.0 g of a n-6 fatty acid containing oil, approximately 1.5 g of a n-3 rich oil that provides approximately 450 mg of EPA and approximately 300 mg of DHA, approximately 200 IU of vitamin E, and approximately 10 mg of mixed tocopherols.

30 41. The method of claim 36, wherein the ratio of the n-6 fatty acid containing oil to the n-3 rich oil is about 1 to 3.

42. The method of claim 36, wherein the ratio of the n-6 fatty acid containing oil to the n-3 rich oil is about 3 to 1.